



# OptoLyzer OL3025o

User's Manual

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Nov. 2009

**MOST®**

Media Oriented Systems Transport

**Multimedia and Control  
Networking Technology**



## Legend

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# User's Manual Versions

Doc. Number	Date	Description
UM_OptoLyzer OL3025o_V02_00_XX-3	Nov. 09	<p>Section 2: "and network status information" added.</p> <p>Section 2.1: New features added. "and network status information" added.</p> <p>Section 3.1.2: S/PDIF: Crossreference added to Section 5.2.5.</p> <p>Section 4.1: Hint added that mentions the UpdateStickGenerator.exe</p> <p>Section 4.4: Updating of the tools license revised. Now the OptoLyzer Suite is used.</p> <p>Section 5.2.2, Table 5-5: Numbering adapted according to the Socket Protocol V1.3 user manual, output added in table. Hint added information can be found in the user manual Socket Protocol V1.3.</p> <p>New section about S/PDIF formats added: Section 5.2.5</p>
UM_OptoLyzer OL3025o_V02_00_XX-2	Sep. 09	Table 3-1 in Section 3.1.1: Description improved for Green Lock LED, booting operation (case 2).
UM_OptoLyzer OL3025oV2_00_XX-1	Sep. 08	First release User's Manual

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## 1 Preface

### 1.1 Intended Use

This SMSC product is intended to be used for developing, testing, or analyzing MOST<sup>®</sup> based multimedia products and systems by persons with experience in developing multimedia devices.

The operation of this SMSC product is only admitted with original SMSC devices, e.g., provided power supply.

### 1.2 Scope of Delivery

The OptoLyzer OL3025o is delivered with:

- OptoLyzer OL3025o
- User Manual (printed version)
- Power-supply
- Cables
- Accessories

Check your shipment for completeness. If you have any complaints direct them to [sales-ais-europe@smsc.com](mailto:sales-ais-europe@smsc.com) (Europe and Asia) or to [sales-ais-usa@smsc.com](mailto:sales-ais-usa@smsc.com) (America). Providing the delivery note number eases the handling.

#### 1.2.1 Software on the CompactFlash

The CompactFlash<sup>™</sup> comes with:

- Microsoft<sup>®</sup> Windows<sup>®</sup> CE 5.0 as operating system
- Microsoft<sup>®</sup> Windows<sup>®</sup> CE loader
- Extended software with spy functionality, MOST drivers and specific services

#### 1.2.2 Software on the USB Stick

The USB stick comes with a complete backup of the CompactFlash. In addition, maintenance utilities (DOS Tools) are offered on the USB stick (described in Section 4.3 on page 21).

## 1.3 Term Definitions

For better understanding of the following chapters, this section provides explanation to special terms, used in the description of the OptoLyzer OL3025o.

Term	Definition
Advanced Mode	This mode stands for a manual update of either the FPGA or chips of the MOST PC Interface. It is performed using the delivered USB stick.
Client	The connected laptop/PC is called client, additional or target PC. The OptoLyzer OL3025o is designated as host.
Controlling Software	A software that is running on the client. It manages the communication with the OptoLyzer OL3025o. The controlling software comprises both the handling of spied data and performing control tasks.
Easy Mode	This mode stands for an automatic update of the FPGA / chips of the MOST PC Interface. It is performed using the delivered USB stick.
EHC	External Host Controller
Event	The OptoLyzer Suite is working with a common format. Therefore the incoming data is converted to Events.
Host	The OptoLyzer OL3025o is designated as host. The connected laptop/PC is called client, additional or target PC.
INIC	Intelligent Network Interface Controller
MBI	Message Based Interface
oPHY	Optical Pyhsical Layer
OptoLyzer G2 3025o	This product comprises OptoLyzer Suite and OptoLyzer OL3025o.
OptoLyzer OL3025o	Hardware of the OptoLyzer G2 3025o. It will be connected into the MOST network. Afterwards it takes the data for further processing.
OptoLyzer Suite	This is the software of the OptoLyzer G2 3025o. It covers the OptoLyzer Suite main window, Viewers, Recorders, Graphs and Watches. In addition, the Transceiver and the MOST Interface Control can be started in the OptoLyzer Suite.
POF	Plastic optical fiber
S/PDIF	Sony/Philips Digital Interconnect Format

Table 1-1: Term Definitions

## 2 Introduction

The OptoLyzer OL3025o is a versatile hardware for debugging and analyzing Control, Packet data, and network status information in a MOST25 optical network. It provides connection to the MOST25 optical network via a MOST oPHY connector that is based on the Optical Physical Layer. When used in combination with the OptoLyzer Suite all data is transferred via an Ethernet connection to a PC running the installed OptoLyzer Suite. The device is prepared to work in laboratory (stationary) environments (voltage range of 100 - 240 V DC transformed to 12 V). The OptoLyzer OL3025o is able to run in timing master mode, slave mode, bypass mode and S/PDIF master mode.

### 2.1 Features in Use with OptoLyzer OL3025o

Depending on the currently loaded firmware the OptoLyzer OL3025 features the following:

- Versatile MOST network analysis tool for Control, Packet data and network status information
- MOST25 network optical interface
- SpyNIC for MOST25 running in bypass mode
- StressNIC for MOST25
- INIC running in bypass mode (default), in master or slave mode or as S/PDIF master. The INIC allows sending and receiving of MOST Control and Packet data.
- Remote connection via Ethernet interface
- Routing of 4 MOST synchronous channels; respectively one to Line OUT, to Line IN, to S/PDIF OUT and to S/PDIF IN
- 4 electrically isolated TTL hardware trigger
- LEDs indicating different states of device and network
- Support for 44.1 kHz and 48 kHz system sample rates and S/PDIF master
- Time stamp resolution: ~1.3  $\mu$ s; accuracy: 1 frame
- Headphone interface
- Boot Fallback (BFB) functionality

## 2.2 Possible Scenario

A MOST network might consist of various MOST devices. State-of-the-art multimedia systems need powerful tools for both finding of irregularities and controlling of the MOST network's interfaces. The OptoLyzer OL3025o is developed to perform these tasks.

A possible scenario is depicted in Figure 2-1. The OptoLyzer OL3025o is part of the MOST network and spies its data. The data is transmitted to a connected PC via an Ethernet connection. A controlling software (e.g., OptoLyzer Suite) handles the spied data. Triggering in both directions is possible. Additionally, control tasks can be performed via a controlling software.

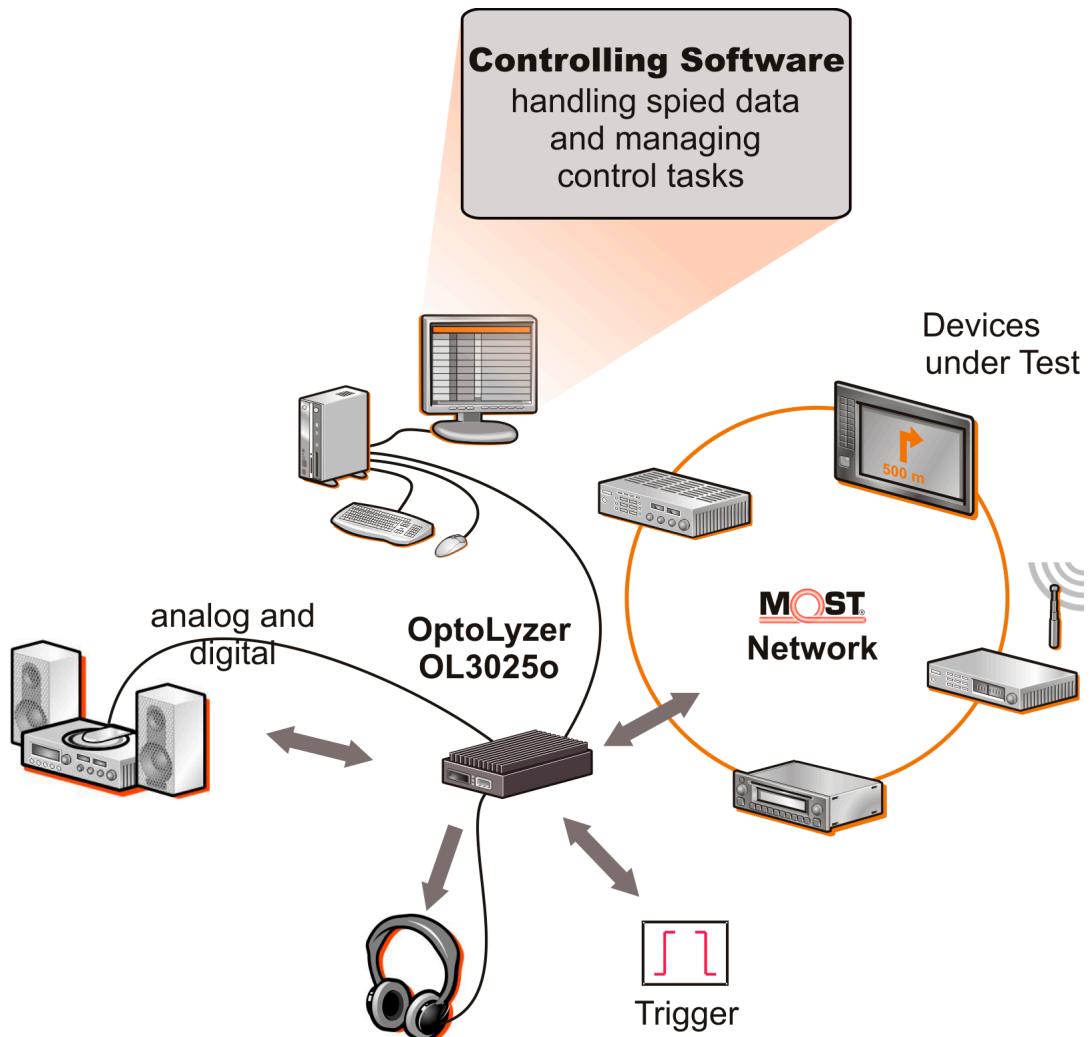


Figure 2-1: Possible Scenario of an OptoLyzer OL3025o

The following sections describe the concepts for both:

- Analyzing the MOST network as spy

And

- Performing control tasks (via e.g., OptoLyzer Suite)

## 2.2.1 Analyzing the MOST Network as Spy

The OptoLyzer OL3025o provides full spy functionality. Since the OptoLyzer OL3025o is always configured as spy it has simply to be connected in a MOST network to use this feature. The OptoLyzer OL3025o spies the complete traffic - even heavy data loads - on the Control data channel and the Packet data channel of a MOST network. An included application takes the incoming data and converts it into a common format named 'Events'. Another application provides a socket connection for further processing. If the OptoLyzer OL3025o is used in combination with controlling software the spied data can be displayed in different kind. E.g., the data can be monitored in a window for on-line analyzing. Furthermore the data can be shown in a graph for statistic purposes. Even data recording is possible for off-line analyzing (see Figure 2-1). The hardware trigger inputs allow injecting events via external hardware.

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Note: For interpreting an acknowledge code it is important to know that the SpyNIC for MOST25 is arranged behind the StressNIC and the INIC inside the OptoLyzer OL3025o.

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## 2.2.2 Performing Control Tasks

The OptoLyzer OL3025o can also operate as timing master, slave or S/PDIF master. Then the OptoLyzer OL3025o supports the performing of control tasks via controlling software on a client. For example the mode of the OptoLyzer OL3025o can be changed. Normal operation assumed, messages can be sent and viewed for e.g., test or simulation on the MOST network. In addition, the OptoLyzer OL3025o is able to route streaming data.

## 3 Installation

This chapter describes the elements and connectors of the OptoLyzer OL3025o. A connectivity diagram shows how to connect the OptoLyzer OL3025o and the client in a typical MOST network application.

### 3.1 OptoLyzer OL3025o System Description

The OptoLyzer OL3025o comes with all components configured and prepared for default operation. When the OptoLyzer OL3025o is used in combination with the OptoLyzer Suite it needs to be connected to the PC the application is running. The following sections describe the different views of the OptoLyzer OL3025o. Service aspects as e.g., an update procedure are handled in Chapter 4 on page 20.

#### 3.1.1 Front View of the OptoLyzer OL3025o

The front view of the OptoLyzer OL3025o provides access to external interfaces and elements for controlling and information.

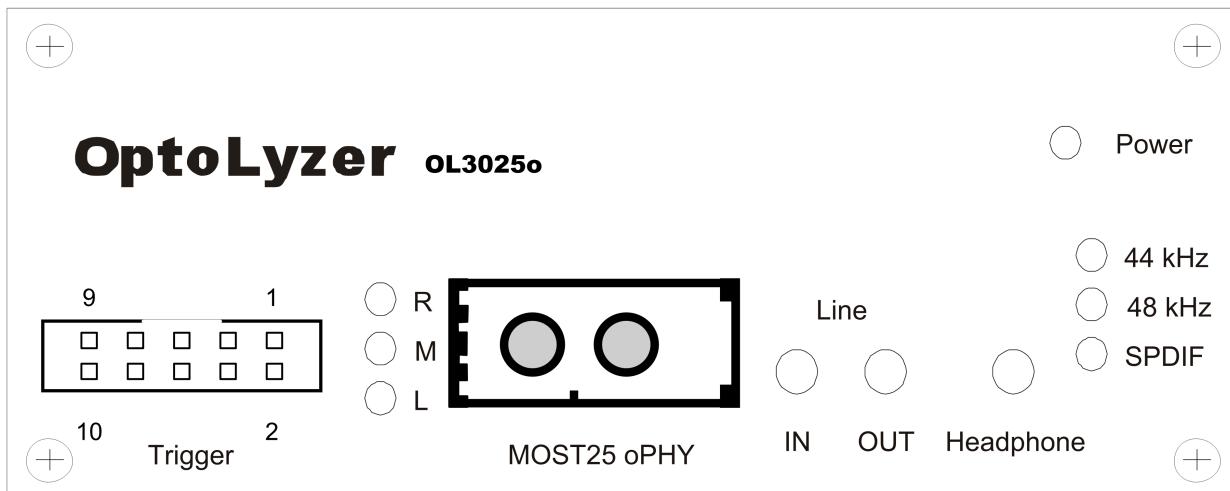


Figure 3-1: OptoLyzer OL3025o (Front Panel)

The components are described from left to right:

#### Hardware Trigger Interface:

There are four hardware trigger that can be used as input or output. By default the hardware trigger are specified as input trigger. In the spy operation mode the software will detect input hardware trigger changes and send them over the Ethernet. For further technical details refer to Section 5.2 on page 24.

## LEDs:

To the right of the hardware trigger interface there are three LEDs among each other. Each of them is supporting different functionalities depending on the operating mode. Normal operation means the OptoLyzer OL3025o is ready i.e., the OptoLyzer OL3025o's applications are running and an IP is available. The booting operation describes the time intervall from switching on the power of the OptoLyzer OL3025o until the device is ready for operation. For more details on the booting process refer to Section 3.3 on page 19. In the updating operation mode either the CompactFlash or the chips / FPGA of the OptoLyzer OL3025o are updated or the license is updated. For more details on the updating process refer to Chapter 4 on page 20.

LED label	Color	State	Description
R (Ready)	Red	On	<ol style="list-style-type: none"> <li>Normal operation: The OptoLyzer OL3025o is ready.</li> <li>Booting operation: Booting is completed. The OptoLyzer OL3025o is ready.</li> <li>Updating operation i.e., chips are in flashing mode if:           <ul style="list-style-type: none"> <li>Red and yellow LED are on simultaneously or</li> <li>Red, yellow and green LED are on simultaneously.</li> </ul>           Although this can take a few minutes <b>do not switch off</b> the OptoLyzer OL3025o <b>in this state</b>.         </li> </ol>
		Off	<ol style="list-style-type: none"> <li>Normal operation: The OptoLyzer OL3025o is not ready. Services does not work properly or there is no valid IP present on the device.</li> <li>Booting operation: The OptoLyzer OL3025o is waiting for a valid IP.</li> <li>Updating operation: Update is finished when red, yellow and green LED are off simultaneously. Switch off, remove USB stick and switch on.</li> </ol>
		Blinking slowly	<ol style="list-style-type: none"> <li>Normal operation: No function</li> <li>Booting operation: The OptoLyzer OL3025o gets initialized.</li> <li>Updating operation: No function</li> </ol>
		Blinking fast	<ol style="list-style-type: none"> <li>Normal operation: A twinkle command is sent from the OptoLyzer Suite.</li> <li>Booting operation: The operating system is loaded.</li> </ol>
M (Message)	Yellow	On	<ol style="list-style-type: none"> <li>Normal operation: A message is received by the INIC.</li> <li>Booting operation: No function</li> <li>Updating operation:           <ol style="list-style-type: none"> <li>CompactFlash is updated.</li> <li>Only yellow LED is on.</li> <li>Chips are in flashing mode if:               <ul style="list-style-type: none"> <li>Yellow and red LED are on simultaneously or</li> <li>Yellow, red and green LED are on simultaneously.</li> </ul>           Although this can take a few minutes <b>do not switch off</b> the OptoLyzer OL3025o <b>in this state</b>.         </li> </ol> </li> </ol>
		Off	<ol style="list-style-type: none"> <li>Normal operation: No function</li> <li>Booting operation: No function</li> <li>Updating operation: Update is finished when red, yellow and green LED are off simultaneously. Switch off, remove USB stick and switch on.</li> </ol>
L (Lock)	Green	On	<ol style="list-style-type: none"> <li>Normal operation: The MOST network is locked.</li> <li>Booting operation: The MOST network is locked.</li> <li>Updating operation: If green, yellow and red LED are on simultaneously: Chips are in flashing mode. Although this can take a few minutes <b>do not switch off</b> the OptoLyzer OL3025o <b>in this state</b>. The green LED is only on when either the SpyNIC for MOST25 or the StressNIC or the INIC is updated. If the FPGA of the MOST PC Interface is flashed the green LED is off.</li> </ol>
		Off	<ol style="list-style-type: none"> <li>Normal operation: The MOST network is not locked.</li> <li>Booting operation: The MOST network is not locked.</li> <li>Updating operation: Update is finished when red, yellow and green LED are off simultaneously. Switch off, remove USB stick and switch on.</li> </ol>

Table 3-1: Function of the Status LEDs

## MOST Interface

The OptoLyzer OL3025o can be connected to the MOST network via a Yazaki 2+0 connector. The optical parameters of the connector are compliant to the MOST Specification.

- Tx: Optical output for MOST network
- Rx: Optical input for MOST network

## Audio Line IN and OUT:

The OptoLyzer OL3025o provides one audio input and one audio output connector to the right of the MOST interface on its front panel. Each of them has a 3.5 mm plug. For technical details refer to Section 5.2 on page 24.

## Audio Headphone OUT:

The OptoLyzer OL3025o provides one audio headphones connector (3.5 mm plug) to the right of its front panel. For technical details refer to Section 5.2 on page 24.

## LED Power:

A green colored LED top right on the front panel indicates power is switched on.

## Frequency LEDs:

The LEDs located on the right side indicate the frequency of the MOST network in all modes: timing master, slave, bypass and S/PDIF master. S/PDIF master means the OptoLyzer OL3025o is running in timing master mode and it generates the frames for the entire MOST network synchronized to the incoming S/PDIF source data stream. An external S/PDIF signal may have a tolerance of  $\pm 100$  Hz.

LED	State	Description
44 kHz	On	The frequency of the MOST network is 44.1 kHz tolerating a deviation of $\pm 100$ Hz.
	Off	The frequency of the MOST network is not 44.1 kHz.
48 kHz	On	The frequency of the MOST network is 48 kHz tolerating $\pm 100$ Hz.
	Off	The frequency of the MOST network is not 48 kHz.
S/PDIF	On	<ol style="list-style-type: none"><li>1. <b>Only S/PDIF:</b> The incoming S/PDIF source data stream has a frequency that is not equal to 44.1 kHz or 48 kHz.</li><li>2. <b>S/PDIF together with 44 kHz LED:</b> The incoming S/PDIF source data stream has a frequency of 44.1 kHz tolerating a deviation of <math>\pm 100</math> Hz.</li><li>3. <b>S/PDIF together with 48 kHz LED:</b> The incoming S/PDIF source data stream has a frequency of 48 kHz tolerating a deviation of <math>\pm 100</math> Hz.</li></ol>
	Blinking fast	S/PDIF master is set but the signal is not a valid S/PDIF signal.
	Blinking slowly	<ol style="list-style-type: none"><li>1. S/PDIF master is not set: A S/PDIF signal is routed but it is not a valid S/PDIF signal.</li><li>2. S/PDIF master is set but the S/PDIF signal differs more than 100 Hz from 44.1 kHz or 48 kHz. This means if the S/PDIF signal is<ul style="list-style-type: none"><li>• &lt; 44 kHz or</li><li>• &gt; 44.2 kHz and &lt; 47.9 kHz or</li><li>• &gt; 48.1 kHz.</li></ul></li></ol>
	Off	There is no incoming S/PDIF signal.

Table 3-2: Frequency LEDs

### 3.1.2 Rear Panel of the OptoLyzer OL3025o

The rear panel of the OptoLyzer OL3025o provides access to power jack, power switch, CompactFlash slot, USB interfaces, a BFB button, and interfaces to a remote PC.

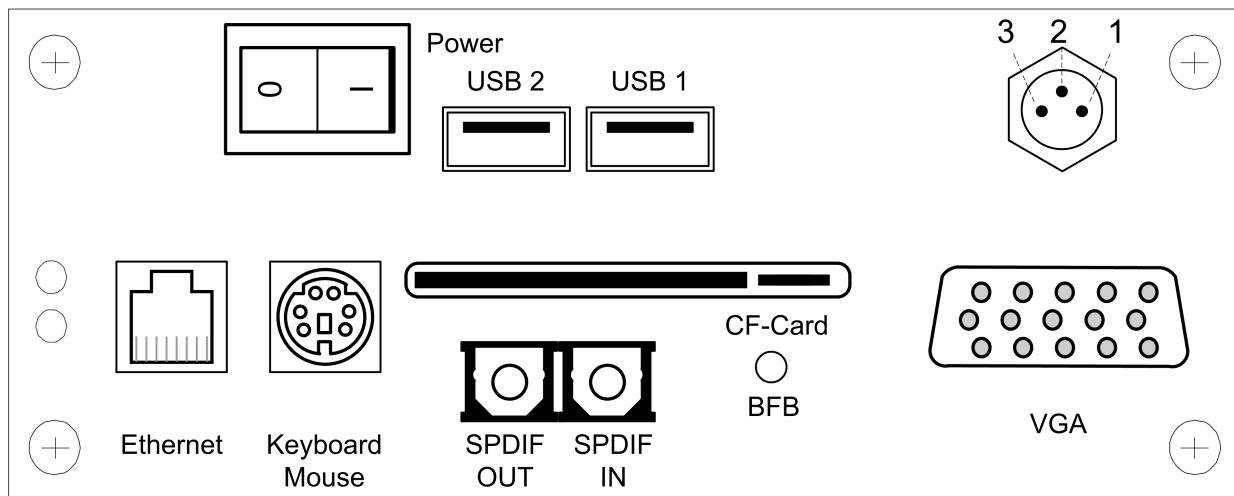


Figure 3-2: OptoLyzer OL3025o (Rear Panel)

All components of the rear panel are described from left to right and top down:

#### Power on/off Switch:

The power on/off switch is located left most. In position '1' the OptoLyzer OL3025o is on, in position '0' the power is switched off.

#### USB Interfaces (2x):

Designated only for connecting SMSC products as e.g., an USB stick for updating purposes or a WLAN USB adapter.

#### Power Jack (mains):

The OptoLyzer OL3025o comes with an AC power supply unit (voltage range from 100 V to 240 V) that has to be connected to this plug. For technical details refer to Section 5.2 on page 24.

#### Ethernet Interface:

This interface is the standard communication port that connects the OptoLyzer OL3025o to a PC via a 100Base-T Ethernet connection. If the OptoLyzer Suite is running on this PC it is able to control the OptoLyzer OL3025o and to receive its data. The connector is a standard RJ45. Left hand two LEDs give information on connection (Link LED: yellow) and traffic (Activity LED: green).

#### PS2 Interface (keyboard, mouse):

External interfaces are not needed neither for operating the OptoLyzer OL3025o nor for performing all standard use cases. Nevertheless there is a PS2 interface for mouse and keyboard. It can be useful to connect a mouse and a keyboard for more functionality. The mouse and the keyboard are not part of the shipping.

### CompactFlash Slot:

A CompactFlash slot is placed in the center of the rear panel. The delivered CompactFlash provides the operating system Microsoft® Windows® CE 5.0 and all other software that is necessary for analyzing and controlling purposes. To the right of the slot there is a small button to eject the CompactFlash.

### S/PDIF OUT/IN

The OptoLyzer OL3025o provides respectively an optical S/PDIF output and input.

Connector types:

- S/PDIF OUT: TOTX173 (Toshiba)
- S/PDIF IN: TORX173 (Toshiba)

For more details on S/PDIF formats refer to Section 5.2.5 on page 25.

### BFB Button:

This button provides a fallback solution if the update of an FPGA is interrupted (e.g., loss of power). Switch off the OptoLyzer OL3025o. Then press the Boot Fallback button (BFB) for about 1 second and simultaneously switch on the OptoLyzer OL3025o.

### VGA Interface:

The hardware of the OptoLyzer OL3025o supports a VGA interface for connecting a VGA monitor. The display will be recognized automatically. The enclosed adapter can be used for connecting a VGA monitor.

## 3.2 Connectivity Diagram

The following sections describe how the OptoLyzer OL3025o can be integrated in a MOST25 network. In addition the connections are shown that are mandatory like the 100Base-T Ethernet connection to the laptop/PC running controlling software and the power supply. The MOST25 oPHY interface is mandatory for analysis purposes. Furthermore some connections are mentioned that can be used for optional functionality like monitor, mouse, keyboard, and analog audio devices.

### 3.2.1 Connectivity Diagram—Front Panel

Figure 3-3 depicts the connectivity diagram of the front panel.

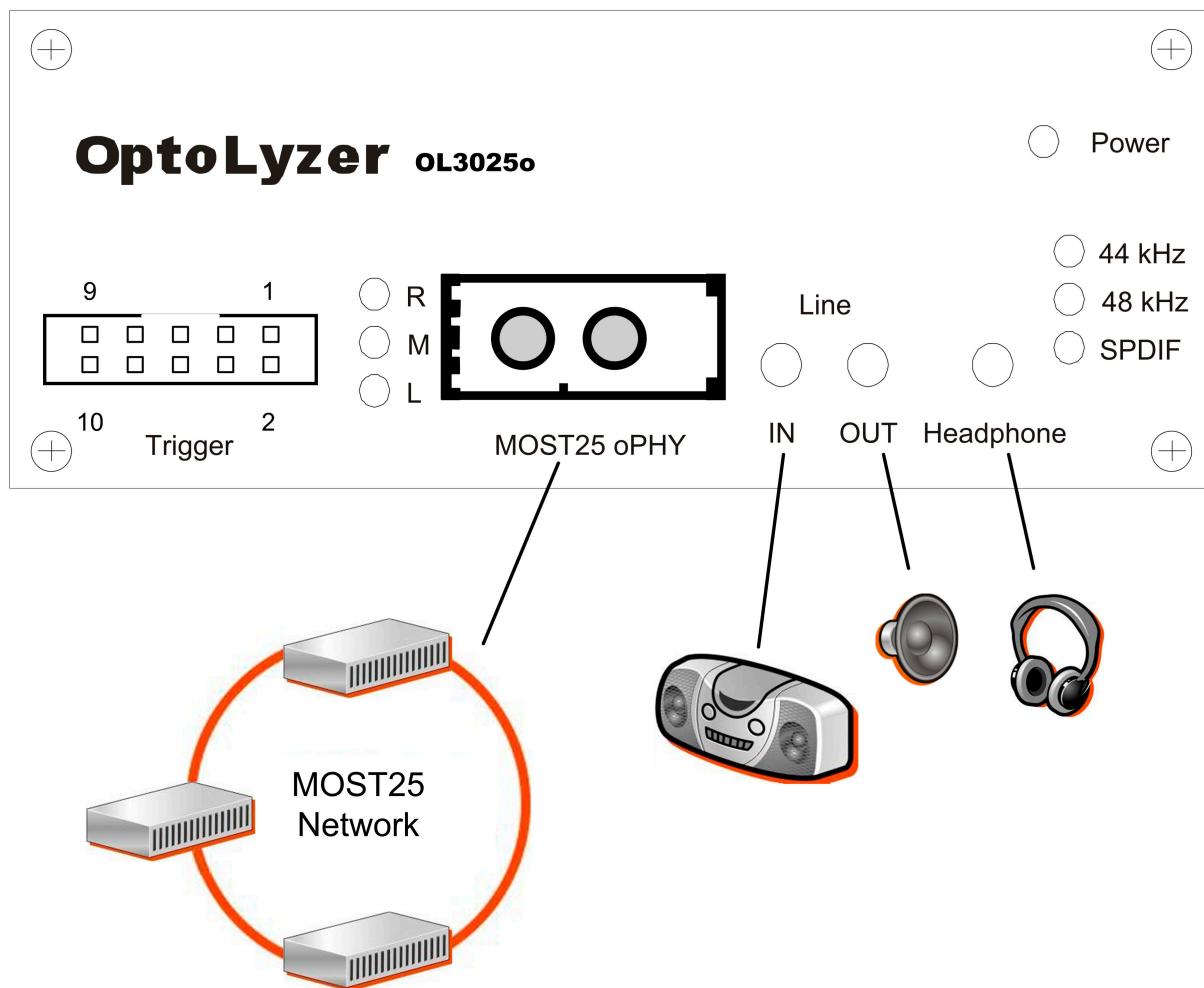
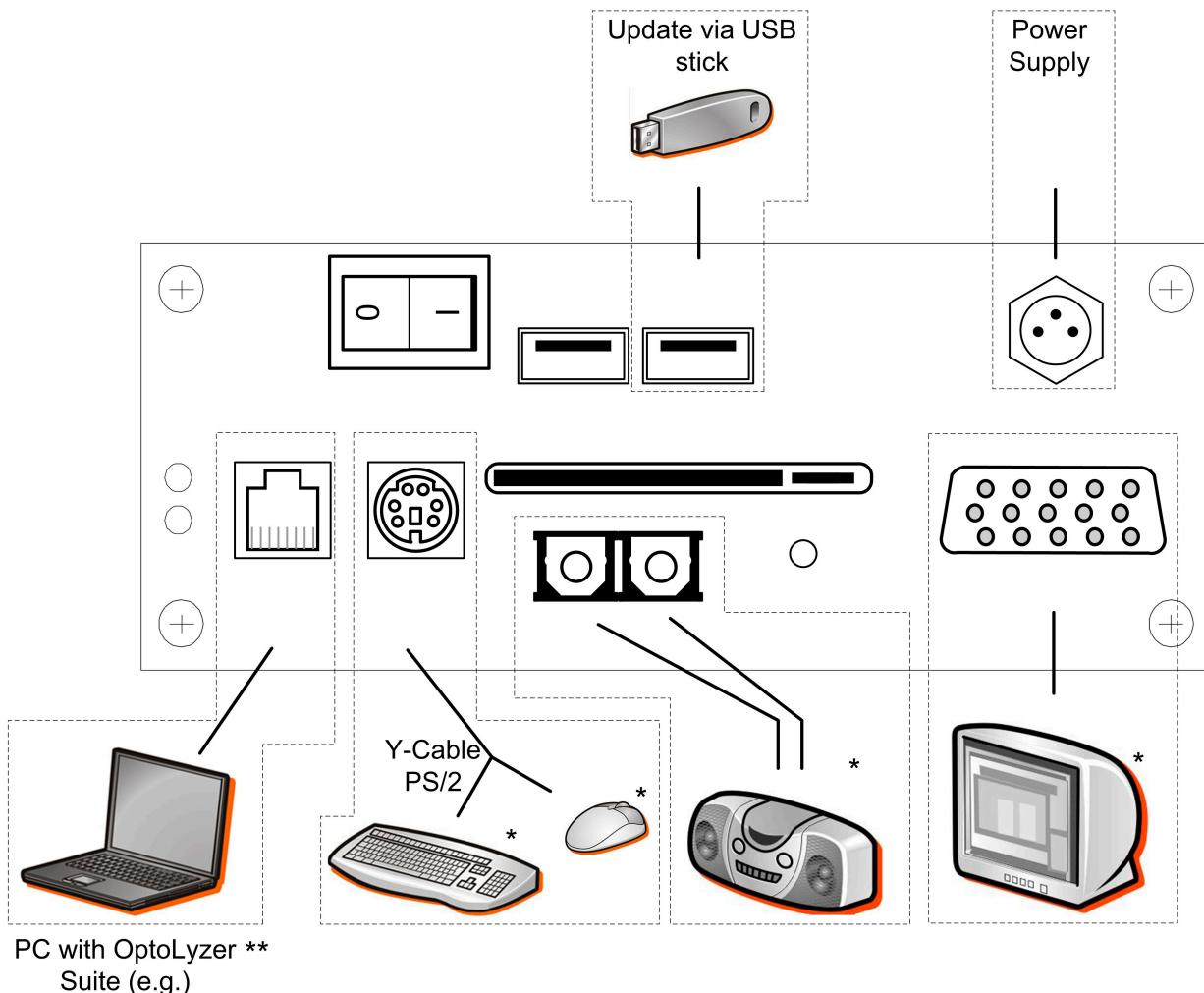


Figure 3-3: Connectivity Diagram—Front Panel

### 3.2.2 Connectivity Diagram—Rear Panel

The connectivity diagram of the rear panel is depicted in Figure .



PC with OptoLyzer \*\*  
Suite (e.g.)

\* Optional

\*\* There are several connection concepts how to connect a PC with the OptoLyzer. For details refer to the *OptoLyzer G2 3xxx Start-up Guide* [2].

Figure 3-4: Connectivity Diagram—Rear Panel

### **3.3 Booting the OptoLyzer OL3025o**

After connecting to the power supply the OptoLyzer OL3025o can be switched on. The red LED (R) to the left of the MOST Interface indicates the progress while booting. The single steps are described in the sequence as they occur.

1. The red LED blinks slowly: The OptoLyzer OL3025o starts initializing.
2. The red LED blinks fast: This indicates the operating system is loaded.
3. The red LED switches off: The operating system has been loaded and the OptoLyzer OL3025o is waiting for a valid IP.
4. The red LED is on: All services are running and a valid IP is available. The OptoLyzer OL3025o is ready to run.

## 4 Maintenance

The OptoLyzer OL3025o is shipped with a bootable USB stick. This chapter describes an automatically performed update of both CompactFlash and MOST PC Interface (recommended case). In addition it is possible to separately update the CompactFlash (Section 4.2) or the MOST PC Interface (Section 4.3).

### 4.1 Update All (Recommended Case)

The USB stick offers the possibility to automatically update the CompactFlash and the MOST PC Interface (FPGA firmware, SpyNIC for MOST25, StressNIC and INIC) in one step. This option is the recommended use case and is preset as default in the boot menu of the USB stick, i.e. this update procedure will be performed if not another option will be selected. Neither a keyboard nor a monitor need to be connected in the default case. Only those parts (FPGA / chips) are updated for which newer versions are available.

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Note: SMSC provides a utility called 'UpdateStickGenerator.exe' that features the following:

- Automatical search for the recent firmware.
- Automatical download & storage of the recent firmware on a removable storage device.

The utility can be downloaded from our Web site. On the Web site search for 'UpdateStickGenerator'.

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The update procedure is described below:

1. Switch off the OptoLyzer OL3025o.
2. Plug in the USB stick with the latest USB firmware that can be downloaded from SMSC AIS's web site.
3. Switch on the OptoLyzer OL3025o.

The red LED (Ready) blinks slowly. After some seconds the red LED (R) stops blinking and the yellow LED (M) turns on indicating the CompactFlash is updated. After some time the red LED (R) turns on additionally. In this state the FPGA / chips are checked whether they have to be updated or not. If a newer firmware is available the corresponding FPGA / chip will be flashed. Then the red, yellow and green LED (except for an FPGA update) are on. **The flashing procedure can take a few minutes depending on the number of FPGA / chips to be updated.**

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Note: Do not switch off the OptoLyzer OL3025o during flashing the chips, i.e., while the red, yellow and green LEDs are on.

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After finishing the chip update, the LEDs turn off and finally the OptoLyzer OL3025 beeps once.

4. Power down the OptoLyzer OL3025o and remove the USB stick.
5. Switch on the OptoLyzer OL3025o. Because of the initialization caused by the update of the CompactFlash the OptoLyzer OL3025o will boot twice. The red LED (R) indicates the progress:
  1. Blinking slowly
  2. Blinking fast
  3. Blinking slowly
  4. Blinking fast
  5. Off
  6. On

## 4.2 Update CompactFlash

The delivered USB stick contains a complete backup of the original CompactFlash data (factory default). The CompactFlash can be recovered using the backup of the USB stick. The procedure how to recover the CompactFlash is described below.

To recover or update the OptoLyzer OL3025o follow these steps:

1. Connect a keyboard, a monitor (not part of the shipment) and a mouse (optional) according Figure .
2. Plug in the delivered bootable USB stick into a USB slot.
3. Restart the OptoLyzer OL3025o.

The OptoLyzer OL3025o displays a boot menu.

---

Note: If no item is selected for some time (i.e., some seconds) the CompactFlash and the PCI Board are updated automatically (described in Section 4.1 on page 20).

---

4. Enter '1' for 'Update CompactFlash'.
5. Follow the instructions. The CompactFlash memory will be overwritten.
6. After finishing the recovery procedure switch off the OptoLyzer OL3025o.
7. Remove the USB stick.
8. Start the OptoLyzer OL3025o again by switching on the power. The OptoLyzer OL3025o will boot twice as described in Section 4.1.

## 4.3 Update MOST PC Interface Manually (DOS Tools)

The USB stick allows to update the firmware of the chips manually. The procedure to achieve this with the DOS tools is described below:

1. Connect a keyboard and a monitor (not part of the shipment).
2. Plug in the delivered bootable USB stick into a USB slot.
3. Restart the OptoLyzer OL3025o.

The OptoLyzer OL3025o displays a boot menu.

---

Note: If no item is selected for some time (i.e., some seconds) the CompactFlash and the MOST PC Interface are updated automatically (described in Section 4.1 on page 20).

---

4. Enter '2' for 'Update MOST PC104+ Interface (DOS Tools)'.
5. Select the MOST PC Interface. Afterwards the following options are provided
  - Check or Write License Keys
  - Automatic update (easy mode)
  - Manual update (advanced mode)
6. Select 'Manual update (advanced mode)' and follow the instructions.
7. After finishing the update procedure switch off the OptoLyzer OL3025o.
8. Remove the USB stick.
9. Start the OptoLyzer OL3025o again by switching on the power.

For details how to use the DOS tools options please refer to the additional user manual DOS Tools MOST PC Interfaces that can be found on the CD.

## 4.4 Update a License

If e.g., the customer purchased a new plugin for the OptoLyzer Suite it could be useful to update a license (in this case the tool license). The tools license can be comfortably updated using the OptoLyzer G2 Admin Web Interface implemented in the OptoLyzer Suite.

The procedure is described below:

1. Start the OptoLyzer Suite.
2. Right click in the main window and select 'Search'.
3. Select the OptoLyzer OL3025o (use the twinkle functionality to find the correct device) and confirm.  
Afterwards the device will be shown in the main window.
4. Select the device in the main window.
5. Right click and select 'Configure'.
6. In the main menu select 'Tools License'. The current license is shown above an input field.
7. Enter the new license in the input field. You can find it on the application's license card.
8. Click 'Set'.

The new license is written onto the OptoLyzer OL3025o V2. Now your new application can be started.

---

Note: The tools license can also be updated via the WIBU-Key Writer implemented in the OptoLyzer Suite, via an MBI command that is described in the *OptoLyzer Socket Protocol [1]* or via the DOS Tools available on the delivered USB stick.

---

## 5 Technical Specification

### 5.1 Mechanical and Environmental Characteristics

#### 5.1.1 Mechanical Dimensions

Mechanical dimensions of the OptoLyzer OL3025o in millimeters, without screws, plugs and switches:

Height	Width	Depth
50	134	175

*Table 5-1: Mechanical Dimensions of the OptoLyzer OL3025o*

#### 5.1.2 Environmental Specification

##### Protection against Over Temperature

The OptoLyzer OL3025o integrates temperature sensitive components. Therefore do not cover the device with paper, textiles or other objects. Covering disables the passive cooling (cooling rips). Make sure to allow enough airflow to the OptoLyzer OL3025o, when the device is assembled. Do never place the running OptoLyzer OL3025o in a closed case or box. Clean the surface of the computer system from dust, oil and other isolating materials, to prevent a reduction of the cooling efficiency. Do not stack any OptoLyzer OL3025o.

##### Operating Mode

Parameter	Values
Ambient temperature	0° to 50° C
Relative humidity (non-condensing)	80%

*Table 5-2: Operating Mode*

##### Non-Operating Mode (Storage)

Parameter	Values
Ambient temperature	-40° to 85° C
Relative humidity (non-condensing)	95%

*Table 5-3: Non—Operating Mode*

## 5.2 Electrical Characteristics

### 5.2.1 Power Supply

Operating Voltage:	8 V - 30 V (DC)
Power Consumption: Operation (typical):	14 W
Current Drain (max):	3 A

#### Power Input / Main Supply Connector

Pin	Description
1	Power
2	-
3	GND

Table 5-4: Power Supply Connector

### 5.2.2 Trigger Interface

#### Technical Data of the Trigger Interface

Table 5-5 describes the pin connection of the hardware trigger interface.

Hardware Trigger	0		1		2		3			
Pin	1	2	3	4	5	6	7	8	9	10
Signal	GND	Input/ Output	GND	Input/ Output	GND	Input/ Output	GND	Input/ Output	GND	Do not connect.

Table 5-5: Connector Pin List of the Hardware Trigger Interface

By default the hardware triggers are specified as input triggers. Refer to the user manual Socket Protocol V1.3 for more details about how to switch from an input to an output trigger.

- **As Input:**

Switching threshold = 2.2 V

$U_{i\max} = 16 \text{ V}$

- **As Output:**

Open collector with internal pull up (47 k) to 5 V

**Current limiting:**

If  $U_a$  external on high and  $U_a$  set to low:  $I_{a\max} = 15 \text{ mA}$

---

Note: For more technical details on the circuit diagram referring to the trigger interface contact the technical support available at: <http://www.smsc-ais.com/contact>.

---

### 5.2.3 Audio Line IN/OUT

The electrical properties are described in Table 5-6.

Name	Description
Line IN	Audio stereo signal input: $R_{in} = 12 \text{ k}\Omega$
Line OUT	Audio stereo signal output: $RL_{min} = 3 \text{ k}\Omega$

Table 5-6: Line IN/OUT

### 5.2.4 Headphone OUT

The electrical properties are described in Table 5-7.

Name	Description
OUT	Output power: $P_o = 35 \text{ mW} (R = 160 \Omega)$

Table 5-7: Headphone OUT

### 5.2.5 S/PDIF IN/OUT

The following tables describe which S/PDIF formats are supported by the OptoLyzer OL3025o.

#### 5.2.5.1 S/PDIF (IN) to MOST

IN	MOST	Supported Framerates
16, 20, 24 bit (stereo) / channel	16 bit / channel	11 - 96 kHz (if not being S/PDIF master)

Table 5-8: Direction S/PDIF (IN) to MOST

#### 5.2.5.2 MOST to S/PDIF (OUT)

OUT	MOST	Supported Framerates
16 bit (stereo) / channel	16 bit / channel	11 - 96 kHz (if not being S/PDIF master)

Table 5-9: Direction MOST to S/PDIF (OUT)

## Appendix A: References

1. OptoLyzer Socket Protocol, SMSC. Contact: support-ais-de@smsc.com
2. OptoLyzer G2 3xxx Start-up Guide, SMSC. Contact: support-ais-de@smsc.com

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## Further Information

For more information on SMSC's automotive products, including integrated circuits, software, and MOST development tools and modules, visit our web site: <http://www.smSC-ais.com>. Direct contact information is available at: <http://www.smSC-ais.com/offices>.

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